Important Advances in Clinical Medicine

Epitomes of Progress—Obstetrics and Gynecology

The Scientific Board of the California Medical Association presents the following inventory of items of progress in obstetrics and gynecology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist the busy practitioner, student, research worker or scholar to stay abreast of these items of progress in obstetrics and gynecology which have recently achieved a substantial degree of authoritative acceptance, whether in his own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Obstetrics and Gynecology of the California Medical Association and the summaries were prepared under its direction.

Reprint requests to: Division of Scientific and Educational Activities, California Medical Association, 731 Market St., San Francisco, CA 94103

The Prolactinoma Problem: Long-Term Issues and Short-Term Answers

A RECENT AUTOPSY SURVEY suggests that 10 percent of the population in the United States have prolactinomas. If true, prolactinomas have become the most frequent endocrine disorder, more common even than diabetes, yet little is known of their natural history. It is clear, however, that among a selected population of women with amenorrhea and infertility, as many as a third have hyperprolactinemia and, of these, a third have prolactinomas. Moreover, if galactorrhea is also present, hyperprolactinemia occurs in 75 percent of these patients, and the certainty of a tumor is doubled. Further, early diagnosis is very important because the duration of amenorrhea, for example, appears inversely related to therapeutic success. Because almost 65 percent of women with prolactinomas have a history of sustained exposure to estrogen (in pregnancy or from use of oral contraceptives), menstrual disorders in these women indicate the need for prompt screening for hyperprolactinemia.

Three forms of therapy are available to patients with prolactinomas. Pituitary irradiation, either by conventional radiation therapy or with alpha particles, has been discouraging thus far; only a few patients have had remission of symptoms and in most, serum prolactin (PRL) levels remain elevated as long as three years after treatment.

Bromocriptine mesylate (Parlodel), a dopamine receptor agonist, suppresses excessive secretion of PRL within several weeks in more than 85 percent of cases, although side effects limit prolonged use in 10 percent to 20 percent of patients. Nonetheless, this drug restores both menses and fertility and arrests galactorrhea with the same success rate as surgical procedures. The long-term effects on tumor growth remain unclear—some tumors have shown radiologic regression, whereas others, particularly those found in pregnant women, have increased in size. More important, cessation of bromocriptine is followed by prompt recurrence of hyperprolactinemia in 85 percent of patients. Bromocriptine therefore is best reserved for symptomatic improvement of hyperprolactinemia in patients without radiologic evidence of tumor and in those for whom operations have been unsuc-

cessful. When drug therapy is used as an alternative to operating to induce fertility, prolonged and perhaps lifetime surveillance may be needed to assess tumor growth.

Pituitary transsphenoidal microsurgery remains the preferred treatment for prolactinomas. Successful removal of microtumors with preservation of pituitary function is possible in up to 90 percent of cases. Restoration of menses and cessation of galactorrhea can be achieved in as many as 75 percent of patients, although PRL levels are restored to normal in only 50 percent of them. Finally, the minimal mortality and morbidity rates of this operation, when carried out by an experienced surgeon, indicate that it is the best treatment for prolactinomas available at present.

ERNEST M. GOLD, MD

REFERENCES

Burrow GN, Wortzman G, Newcastle NB, et al: Microadenomas of the pituitary and abnormal sellar tomograms in an unselected autopsy series. N Engl J Med 304:156-158, Jan 15, 1981

Schlechte J, Sherman B, Halmi N, et al: Prolactin secreting pituitary tumors in amenorrheic women: A comprehensive study. Endocrine Reviews 1:293-308, 1980

Post KD, Biller BJ, Adelman LS, et al: Selective transsphenoidal adenomectomy in women with galactorrhea-amenorrhea. JAMA 242:158-162, Jul 13, 1979

Richmond IL, Newton TH, Wilson CB: Prolactin-secreting adenomas: Correlation of radiographic and surgical findings. Am J Radiol 134:707-710, 1980

Tolis G: Prolactin: Physiology and pathology. Hosp Pract, pp 85-95, Feb 1980

Prenatal Diagnosis of Short-Limbed Dwarfism by Ultrasonography

ULTRASONOGRAPHY has greatly improved our ability to diagnose fetal malformations prenatally. Many anomalies of the fetal neural axis, bowel and kidneys have been described, and in the last two years considerable attention has been directed toward abnormalities of the fetal bony skeleton.

Ultrasonic diagnosis of short-limbed dwarfism is accomplished by measuring the length of the fetal femurs. The length of the femoral diaphysis, readily measured with real-time ultrasonographic systems, is compared with the biparietal diameter as an "internal" control of fetal size variability. Normal values have been established for femur lengths from the end of the first trimester to early third trimester and 99 percent confidence limits have been set.

In patients at risk for having babies with short-limbed bone dysplasias, we begin femur measurements at approximately 18 to 20 weeks after the last menstrual period (LMP). If the initial measurement falls within the normal range, serial measurements should be obtained at two-week intervals until either the femur length falls into the abnormal range or the 28th week is reached and normalcy is established.

Thus far, successful diagnoses have been established in fetuses before 22 weeks of age (based on LMP) in the Ellis-van Creveld syndrome, diastrophic dwarfism, achondrogenesis and homozygous achondroplasia. In addition, an unclassified but severe dwarf syndrome has been accurately predicted before 22 weeks menstrual age. Three cases of heterozygous achondroplasia were diagnosed but the presence of short femurs was not confirmed until after 24 weeks menstrual age. In eight patients at risk for having babies with dwarf syndromes, fetuses were diagnosed as showing no abnormalities and, subsequently, the diagnoses proved correct.

The most interesting observation in this series to date, other than the dramatic accuracy in this small sample of patients, is the fact that limb growth in dwarfs occurs differently in heterozygous achondroplasia than in homozygous achondroplasia or other more severe forms of dwarfism. Not only does this fact enable one to separate homozygous from heterozygous achondroplasia by a simple and safe examination, but it establishes differences in bone growth that were not previously recognized.

ROY A. FILLY, MD

REFERENCES

Mahoney MJ, Hobbins JC: Prenatal diagnosis of chondroectodermal dysplasia (Ellis-van Creveld syndrome) with fetoscopy and ultrasound. N Engl J Med 297:258-261, Aug 4, 1977

Filly RA, Golbus MS, Carey JC, et al: Short-limbed dwarfism: Ultrasonographic diagnosis by mensuration of fetal femoral length. Radiology, 1981 (In press)

Queenan JT, O'Brien GD, Campbell S: Ultrasound measurement of fetal limb bones. Am J Obstet Gynecol 138:297-302, Oct 1, 1980

Intrauterine Growth Retardation

THE DIAGNOSIS of intrauterine growth retardation (IUGR) is appropriate for any neonate whose birth weight is less than the tenth percentile for its gestational age. This aberration in growth may result from numerous causes, but the most common include maternal vascular disease, multiple gestations, chromosomal and other isolated malformations of the fetus and fetal viral infections.

Initially, the diagnosis is suspected when the uterine size is too small for the presumed gestational age of the fetus. Ultrasonographic evaluation